REMARKS

This application has been carefully reviewed in light of the Examiner's Action dated June 10, 2004. Claims 1, 3, 4, 8-16, 18-30 and 32-40 have been amended and Claims 5-7, 17, 31 and 41-61 have been canceled without prejudice. In addition, new claim 62 has been added to more fully claim certain aspects of the invention. Reconsideration and full allowance are respectfully requested.

In the Examiner's Action, the Examiner objected to Figure 1 and has required a "prior art" legend. Applicant is submitting a proposed drawing correction herewith for the Examiner's approval.

The Examiner also objected to the drawings as failing to show every feature of the invention specified in the claims. The noted claim features have been amended. Applicant submits that all features specified in the claims as presented are shown in the drawings. Accordingly, it is believed that this requirement for drawing corrections has been obviated.

The Examiner also objected to the specification due to a typographical error at page 35. An appropriate amendment to the specification has been made to address this objection.

The Examiner objected to the specification as not providing proper antecedent basis for certain subject matter claims. The relevant terminology from the claims has been amended and it is believed that this objection has been obviated.

Claims 1-40 were rejected under 35 U.S.C. § 112 as failing to comply with the written description requirement. In particular, the Examiner objects to the use of different terms in the claims and in the detailed description. It is believed that the claim amendments submitted above obviate this concern. In addition, the Examiner indicated the specification does not contain a written description supporting the actuation rails as being parallel to the center bar. This feature is fully supported by the figures including Fig. 8 and accompanying text including, for example, page 41,

lines 2-4 of the specification. Applicant therefore respectfully submits that this rejection should be withdrawn.

The Examiner rejected claims 1-3, 5-7, 12-15 and 17-19 under 35 U.S.C. § 102(b) as being anticipated by Uenishi, et al., Japanese Publication No. JP 09-159939 ("Uenishi"). Claims 1-7, 12-19, 25, 28-31, 33, 34, 35, 38, 39 and 40 were rejected under 35 U.S.C. § 102(e) as being anticipated by Lee, et al., U.S. Patent No. 6,308,573 ("Lee"). In addition, the Examiner rejected claims 1-3, 5-7, 12-15, 17-19, 25, 28-35 and 38-40 under 35 U.S.C. § 102(e) as being anticipated by Lee, et al., U.S. Patent No. 6,360,033 ("Lee II"). These rejections are traversed for the reasons set forth in detail below.

By way of initial summary, Applicant notes that each of these publications suffers from the same deficiency in relation to the claims. Specifically, each of these publications discloses a suspension assembly where individual lateral arms extend from the substrate to the comb drive. By contrast, each of the independent claims as presented herein includes a multi-link suspension, for example, including a central bar, a first lateral arm extending between the lateral bar and the comb drive, and a second lateral arm extending between the center bar and the substrate. Thus, for example, the range of motion of the center bar may be only a fraction (e.g., one half) of the range of motion of the comb drive. Accordingly, each of the lateral arms need only accommodate a fraction of the range of motion of the comb drive, which results in improved drive and/or structural characteristics.

Specifically, as presented, claim 1 is directed to a suspension assembly for use in supporting a first actuation element that comprises a moveable comb assembly including comb fingers and a comb bar interconnecting the fingers. The suspension assembly includes a center bar, a first plurality of lateral bars extending out from the center bar and a second plurality of lateral arms extending out

from the center bar. The second plurality of lateral arms are separate from and interconnected to the first actuation element. Thus, independent claim 1 specifically recites a suspension assembly separate from the comb drive that includes multiple links for interconnecting the comb drive to a substrate.

Claim 12 is directed to a suspension assembly for use in supporting a first actuation element comprising a movable comb assembly including comb fingers and a comb bar. The suspension includes a longitudinal center bar, a first plurality of lateral arms that are stretched when the suspension assembly is actuated and a second plurality of lateral arms that are flexed when the suspension assembly is actuated. The second plurality of lateral arms are interconnected to but separate from the first actuation element. Thus, claim 12 also defines a multi-link suspension assembly separate from the comb drive for interconnecting the comb drive to a substrate.

Independent claim 25 is directed to a suspension assembly for use in supporting a first actuation element comprising a movable comb assembly including comb fingers and a comb bar. The suspension assembly includes a center bar, a number of lateral arms extending out from the center bar and anchored to the base and another number of lateral arms extending out from the center bar and interconnected to the actuation element. Accordingly, independent claim 25 also recites a multi-link suspension assembly, separate from the comb drive, for interconnecting the comb drive to the substrate.

Uenishi is directed to an actuator assembly for use in driving an optical mirror. The actuation assembly of Uenishi comprises a comb drive. The comb drive is suspended on the substrate by way of individual lateral arms 5. The Examiner argues that the comb electrodes comprise actuation of beams. However, as presented, each of the independent claims requires a comb drive separate from the suspension assembly. Accordingly, Uenishi does not describe a multi-link suspension assembly

separate from the comb drive, for interconnecting the comb drive to the substrate and can not achieve the associated advantages of a multi-link suspension as noted above. Applicant therefore respectfully submits that the rejection of Uenishi should be withdrawn.

Lee discloses a comb actuator that is suspended on a substrate by way of individual lateral arms 23. Again, the Examiner asserts that the comb fingers 27 are actuation beams. However, as noted above, each of the independent claims requires a multi-link suspension, separate from the comb drive for interconnecting the comb drive to the substrate. This multi-link suspension includes multiple lateral arms interconnected in series between the comb drive and the substrate. By contrast, Lee discloses only individual arms 23 that must accommodate the full range of motion of the comb drive. Applicant therefore respectfully submits that the rejection in view of Lee should be withdrawn.

Lee II is directed to an optical switch incorporating arch leaf springs in a suspension structure. Specifically, the structure of Lee II includes a comb drive with an integral center bar. This comb drive is connected to the substrate by way of individual links in the form of leaf springs. These leaf springs must accommodate, in a single element, the full range of motion of the comb drive. Thus, Lee II does not disclose a multi-link suspension assembly, separate from a comb drive, for interconnecting the comb drive to the substrate and does not yield the associated advantages. Applicant therefore respectfully submits that this rejection should be withdrawn.

Claims 8-11, 20-24, 26 and 27 were rejected under 35 U.S.C. § 103 as being unpatentable over Lee or Lee II in view of Galvin, et al., U.S. Patent No. 6,149,190 ("Galvin"). As noted above, neither Lee nor Lee II discloses a multi-link suspension assembly, separate from a comb drive, for interconnecting a comb drive to a substrate. Similarly, Galvin discloses a suspension assembly where the actuator is interconnected to the substrate by way of individual arms. Thus, Galvin does

not disclose a multi-link suspension assembly as claimed. Accordingly, even assuming arguendo that Galvin is properly combinable with either Lee or Lee II, the proposed combination does not yield the claimed subject matter. Accordingly, Applicant respectfully submits that this rejection should be withdrawn.

Claims 36 and 37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Lee II. The Examiner acknowledges that Lee II does not disclose the relative geometry of the actuation rails, lateral arms and the substrate as specifically set forth in those claims. Applicant submits that the claimed geometry is made possible by a complex layering mechanism that simply is not contemplated by Lee II and that yields significant advantages relating to preventing certain structure from bottoming out on the substrate. This is believed to present a patentable distinction in relation to Lee II. In any event, as noted above, Lee II does not disclose or suggest the subject matter of independent claim 25. Accordingly, claims 36 and 37 are believed to be patentable as depending from an allowable base claim and further as presenting further patentable subject matter in relation to Lee II.

Based upon the foregoing, Applicants believe that all pending claims are in condition for allowance and such disposition is respectfully requested. In the event that a telephone conversation would further prosecution and/or expedite allowance, the Examiner is invited to contact the undersigned.

Respectfully submitted,

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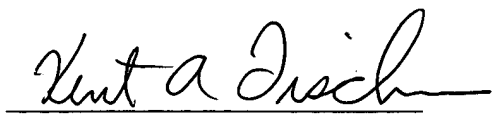
By: 

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Date: November 10, 2004